

- GENERAL
- I. GOVERNING CODE: [2015 INTERNATIONAL BUILDING CODE] (REFERRED TO HEREFTER AS IBC.)
2. DESIGN LOADS PSF:
A. CODE MINIMUM DESIGN LOADS RISK CATEGORY: II
- ROOF: 20 PSF
- SNOW:
I. GROUND SNOW (Ps): 20 PSF
II. FLAT ROOF SNOW (Ps): Ps=0.7 Gs Cs Ie Ps (16 PSF MIN)
III. SNOW EXPOSURE FACTOR (Cs): 1.0
IV. SNOW IMPORTANCE FACTOR (Ie): 1.0
V. THERMAL FACTOR (Cs): II
- WIND:
I. ULTIMATE WIND SPEED (MPH): 115
II. WIND IMPORTANCE FACTOR (Ie): 1.0
III. EXPOSURE CATEGORY: B
- SEISMIC:
I. SEISMIC IMPORTANCE FACTOR (Ie): 1.0
II. MAPPED SPECTRAL RESPONSE: D Sps 304 Sps 131
III. SITE CLASS: D
IV. SPECTRAL RESPONSE COEFF.: Sps 321 Sps 208
V. SEISMIC DESIGN CATEGORY: D
VI. BASIC SEISMIC-FORCE-RESISTING SYS: TIMBER FRAME
VII. DESIGN BASE SHEAR: 8 KIPS
VIII. SEISMIC RESPONSE COEFF. (Ca): 2/14
IX. RESPONSE MOD. FACTOR (R): 1.5
X. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE
3. REFER TO IBC, CHAPTER 35 FOR APPLICABLE VERSION OF ALL CODES REFERENCED HEREFTER, UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR TO CONFORM TO THOSE SHOWN ON THE ARCHITECTURAL DRAWINGS. IF STRUCTURAL DRAWINGS ARE USED FOR LAYING OUT COLUMN CENTERS AND WALL LINES, ALL DIMENSIONS SHALL FIRST BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS. SURVEY LAYOUT FOR THE BUILDING SHALL BE CHECKED AND BE CLOSED BEFORE WORK IS COMMENCED.
5. STRUCTURAL DESIGN AND SPECIFICATIONS REQUIRE THAT ALL SUPPORTING AND NON-SUPPORTING ELEMENTS IN CONTACT WITH FLOOR FRAMING ARE LEVEL, INCLUDING, BUT NOT LIMITED TO: FOUNDATIONS, SLABS ON GRADE, BEAMS, WALLS, AND NON-BEARING ELEMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LEVELNESS AND MAKE ADJUSTMENTS AS NECESSARY, INCLUDING CONSIDERATION OF THOSE AREAS THAT MAY BE WITHIN CONTRACTUAL, INDUSTRY, OR HARBORATORY TOLERANCES.
6. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
7. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.
8. MINOR DETAILS OR INCIDENTAL ITEMS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR A PROPER AND COMPLETE INSTALLATION SHALL BE INCLUDED AS REQUIRED.
9. STRUCTURAL DRAWINGS SHALL NOT BE UTILIZED TO DETERMINE THE EXTENT OF WORK. THE CONTRACTOR SHALL COORDINATE LOCATION OF ALL STRUCTURAL ELEMENTS, SLAB ON METAL DECK, DEPRESSIONS, AND TERRAZZO FINISHES WITH ARCHITECTURAL DRAWINGS AND RESOLVE ALL CONFLICTS PRIOR TO COMMENCEMENT OF WORK.
10. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT PRIOR TO PERFORMING THE WORK.
11. MISCELLANEOUS WOOD OR COLD FORMED STEEL BLOCKING, FRAMING MEMBERS, ANCHORS, FASTENERS, ETC. SHALL BE PROVIDED AS REQUIRED WHETHER OR NOT SPECIFICALLY INDICATED ON DRAWINGS.
12. SECTIONS AND DETAILS SHOWN, WHILE DRAWN FOR SPECIFIC LOCATIONS, ARE INTENDED TO ESTABLISH THE GENERAL TYPES OF DETAILS TO BE USED THROUGHOUT. IF THE CONTRACTOR WISHES TO USE DETAILS OTHER THAN THOSE SHOWN ON THE DRAWINGS, SUCH DETAILS SHALL BE SUBMITTED FOR APPROVAL AND APPROVAL CONFIRMED BEFORE SHOP DRAWINGS ARE COMMENCED.
13. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL APPLICABLE CODES AND REGULATIONS. APPROPRIATE SAFETY MEASURES SATISFYING LOCAL AND OSHA REQUIREMENTS SHALL BE PROVIDED.
14. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR HAVING VISITED THE SITE AND HAVING FAMILIARIZED HIMSELF WITH ALL EXISTING CONDITIONS. ANY QUESTIONS OR DISCREPANCIES FOUND WITH REGARD TO THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER.
15. IF THE EXISTING FIELD CONDITIONS DO NOT PERMIT THE INSTALLATION OF THE WORK IN ACCORDANCE WITH THE DETAILS SHOWN, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY AND PROVIDE A SKETCH OF THE CONDITION WITH HIS PROPOSED MODIFICATION OF THE DETAILS GIVEN ON THE CONTRACT DOCUMENTS. DO NOT COMMENCE WORK UNTIL CONDITION IS RESOLVED AND MODIFICATION IS APPROVED BY THE ARCHITECT.
16. STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR WORK THAT HE DOES NOT REVIEW AND/OR WORK NOT COMPLETED IN ACCORDANCE WITH STRUCTURAL ENGINEER'S PLANS AND/OR SPECIFICATIONS.
17. THE STRUCTURAL ENGINEER'S REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO FOLLOW THE INTENT OF THE CONTRACT DRAWINGS, UNLESS A WRITTEN REQUEST FOR A CHANGE HAS BEEN PREVIOUSLY SUBMITTED AND APPROVED BY THE STRUCTURAL ENGINEER.
18. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURES AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS, AND TIE-DOWNS. PROVIDE ALL SHORING AND BRACING REQUIRED TO STABILIZE AND PROTECT EXISTING AND ADJACENT STRUCTURES AND SYSTEMS DURING COURSE OF DEMOLITION AND CONSTRUCTION OF THE PROJECT.

- FOUNDATIONS & EARTHWORK
- NOTE FOR JOB: WITHOUT GEOTECH REPORT
- I. FOUNDATIONS SHALL BEAR ON UNDISTURBED VIRGIN SOIL AND/OR CONTROLLED COMPACTED FILL MATERIAL PROVIDING A BEARING PRESSURE OF 1500 PSF MINIMUM. THE SLAB-ON-GRADE DESIGN HAS BASED ON ACHIEVING A WESTERGAARD MODULUS OF SUBGRADE REACTION, K, EQUAL TO OR BETTER THAN 100 PCL. SINCE THIS HAS NOT BASED ON ACTUAL SUBSURFACE EXPLORATION, THERE MAY BE A NEED TO MODIFY THE DESIGN OF THE FOUNDATION DEPENDING UPON THE ACTUAL SUBSURFACE CONDITIONS ENCOUNTERED. THE SERVICES OF A GEOTECHNICAL ENGINEER SHALL BE RENDERED TO VERIFY THAT THE SUBSURFACE SITE CONDITIONS MEET THE DESIGN PARAMETERS NOTED ABOVE. CONDITIONS THAT DO NOT MEET THE MINIMUM STANDARDS CITED ABOVE WILL RENDER THIS FOUNDATION DESIGN VOID, IN WHICH CASE STRUCTURAL ENGINEER SHALL BE CONTACTED TO PROVIDE NEW FOUNDATION DESIGN.
1. ALL REQUIREMENTS FOR SITE PREPARATION AND SOIL COMPACTION SPECIFIED IN THE SOILS REPORT SHALL BE FOLLOWED UNLESS ADDITIONAL MORE STRINGENT REQUIREMENTS ARE SPECIFIED. THE SERVICES OF A GEOTECHNICAL ENGINEER OR APPROVED TESTING AGENCY SHALL BE RENDERED TO VERIFY THAT THE SUBSURFACE SITE CONDITIONS MEET THE DESIGN PARAMETERS NOTED ABOVE. NOTIFY ARCHITECT OR STRUCTURAL ENGINEER IF FOUNDATION CONDITIONS ENCOUNTERED DIFFER FROM SOILS EXPLORATION INFORMATION MADE AVAILABLE TO THE CONTRACTOR. CONDITIONS THAT DO NOT MEET THE MINIMUM STANDARDS CITED ABOVE WILL RENDER THIS FOUNDATION AND SLAB DESIGN VOID, IN WHICH CASE THE STRUCTURAL ENGINEER SHALL BE CONTACTED TO PROVIDE NEW FOUNDATION DESIGN.
2. FOOTINGS ARE TO BEAR AT LOWEST OF FOLLOWING REQUIREMENTS:
A. ELEVATIONS NOTED ON DRAWINGS.
B. SOIL SUITABLE FOR DESIGN BEARING PRESSURE, AS DETERMINED BY GEOTECHNICAL ENGINEER.
C. FROST DEPTH (AS DETERMINED BY LOCAL BUILDING DEPARTMENT) WITH RESPECT TO FINISH GRADE.
D. SLOPE OF 1 VERTICAL TO 2 HORIZONTAL FROM NEAREST ADJACENT FOUNDATION.
3. PROTECT ALL EXISTING UNDERGROUND UTILITIES WITHIN WORK AREAS. CONSULT EXISTING MECHANICAL DRAWINGS RELEVANT TO SUCH UTILITIES.
4. BACKFILL SHALL BE GRANULAR MATERIAL APPROVED BY GEOTECHNICAL ENGINEER, DEPOSITED AND MACHINE COMPACTED IN 8-INCH MAXIMUM LAYERS. COMPACTION SHALL HAVE A MINIMUM OF 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH ASTM D698 (STANDARD PROCTOR) AS VERIFIED BY TESTING LABORATORY.
5. EXCAVATE ALL FOUNDATIONS TO REASONABLY EXACT OUTLINE AND DEPTH, AVOIDING OVER-EXCAVATION AND CAVE-IN OF SURROUNDING MATERIALS AFTER SLAB SUBGRADE WORK IS COMPLETE. BOTTOMS OF ALL FOUNDATIONS SHALL BE DRY AND LEVEL PRIOR TO POURING.
6. PROTECT SUBGRADE UNDER ALL FOOTINGS AND SLABS ON GRADE FROM FREEZING DURING CONSTRUCTION.
7. NO FILL OR BACKFILL SHALL BE PLACED AGAINST RETAINING OR FOUNDATION WALLS UNTIL GROUT OR CONCRETE HAS ATTAINED DESIGN STRENGTH AND SUPPORTING MEMBERS ARE IN PLACE, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM STRUCTURAL ENGINEER.

- CONCRETE
1. ALL CONCRETE WORK SHALL BE IN CONFORMANCE WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE," AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE." CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 318, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT," UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
2. ALL CONCRETE SHALL BE READY MIX AND DESIGNED IN ACCORDANCE WITH ACI 301. DESIGN MIXES AND ADMIXTURES SHALL BE SUBMITTED FOR APPROVAL.
3. CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTHS IN 28 DAYS, UNO:
A. FOOTINGS: 3000 PSI
B. SLABS ON GRADE: 3000 PSI
C. CAST-IN-PLACE PIERS: 3000 PSI
D. ALL EXPOSED CONCRETE: 3500 PSI
E. ALL OTHER CONCRETE, UNO: 3000 PSI
4. ALL CONCRETE SHALL HAVE: A SLUMP OF 4" (PLUS OR MINUS 1"), 2 TO 4 PERCENT AIR ENTRAINMENT, AND A MAX. WATER/CEMENT RATIO OF 0.45.
5. PROVIDE 4-6 PERCENT AIR ENTRAINMENT FOR ALL EXPOSED CONCRETE.
6. SUBMIT SHOP DRAWINGS TO STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL INCLUDING FULL INFORMATION FOR PLACING ALL REINFORCING, WITHOUT REFERENCE TO THE DESIGN DRAWINGS.
7. ALL CONCRETE REINFORCING BARS SHALL BE FROM BILLET STEEL IN ACCORDANCE WITH ASTM A615 GRADE 60. ALL WELDED WIRE FABRIC SHALL BE ASTM A955. WWF SHALL BE LAPPED AT LEAST 8 INCHES AND CONTAIN AT LEAST ONE CROSS WIRE WITHIN THE 8 INCHES.
8. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
A. 3" CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
B. 2" CONCRETE EXPOSED TO EARTH OR WEATHER, 45 BAR AND SMALLER.
C. 1 1/2" CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH - FOR THE PRIMARY REINFORCEMENT, TIES, STIRRUPS, AND SPIRALS IN BEAMS AND COLUMNS.
D. 1 1/2" CONCRETE NOT EXPOSED TO WEATHER NOR IN CONTACT WITH EARTH - FOR SLABS, WALLS, AND JOISTS, 40 BAR AND SMALLER.
9. PROVIDE CORNER BARS TO MATCH SIZE AND SPACING OF HORIZONTAL REINFORCING AT CORNERS OF ALL CONCRETE WALL, FOOTING AND GRADE BEAM CONSTRUCTION. CORNER BARS SHALL LAP HORIZONTAL REINFORCEMENT A MINIMUM OF 48 BAR DIAMETERS, UNO.
10. CONTRACTOR SHALL PROVIDE SPACERS, CHAIRS, BOLSTERS, ETC., AS NECESSARY TO SUPPORT REINFORCING STEEL. SUPPORT ITEMS WHICH BEAR ON EXPOSED CONCRETE SURFACES SHALL HAVE ENDS WHICH ARE PLASTIC TIPPED OR STAINLESS STEEL.
11. HOOKS SHALL BE PROVIDED AT DISCONTINUOUS ENDS OF ALL TOP BARS OF BEAMS AND AT SLABS EDGES.
12. MINIMUM LAP SPLICES ON ALL REINFORCING BAR SPLICES SHALL BE 48 BAR DIAMETERS, EXCEPT WHERE OTHERWISE NOTED ON THE DRAWINGS. FOR BEAMS AND ELEVATED SLABS, LAP BOTTOM STEEL AT THE SUPPORT AND TOP STEEL OVER THE MIDSPAN, UNLESS OTHERWISE NOTED.
13. REFER TO TYPICAL DETAILS FOR SPECIFICATIONS ON CONTROL JOINTS, CONSTRUCTION JOINTS, AND EXPANSION JOINTS.
14. HORIZONTAL KEYWAYS IN CONSTRUCTION JOINTS SHALL BE PROVIDED IN BEAMS, SUPPORTED SLABS, AND WALL FOOTINGS WITH A DEPTH OF 1 1/2" AND HEIGHT EQUAL TO ONE THIRD OF THE MEMBER'S DEPTH. REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED ON THE DRAWINGS. CONSTRUCTION JOINTS MAY BE USED ONLY AT LOCATIONS SHOWN ON THE DRAWINGS OR AT OTHER LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER.
15. ALL CONCRETE, INCLUDING FOUNDATION WORK, IS TO BE VIBRATED. VIBRATORS SHALL NOT BE USED TO TRANSPORT CONCRETE.
16. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI COMMITTEE 304. CONCRETE SHALL NOT BE SUBJECT TO DROPS IN EXCESS OF 5 FEET.
17. CONDUITS, PIPES AND SLEEVES SHALL NOT BE LARGER THAN 1/3 OVERALL THICKNESS OF SLAB, WALL OR BEAM IN WHICH THEY ARE EMBEDDED UNLESS OTHERWISE NOTED ON DRAWING OR APPROVED BY STRUCTURAL ENGINEER. INSERTS SHALL NOT BE PLACED CLOSER THAN 3 DIAMETERS OR WIDTHS ON CENTER. REFER TO ACI 318 AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALL INSERTS ARE TO BE REVIEWED BY ENGINEER PRIOR TO INSTALLATION AND PLACEMENT OF CONCRETE.
18. CONTRACTOR SHALL REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF OPENINGS, INSERTS, EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS, SLOPES, ETC., AS REQUIRED BY OTHER TRADES. THESE ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE.
19. ALL ANCHOR BOLTS SHALL BE IN PLACE PRIOR TO POURING CONCRETE.
20. CONTRACTOR SHALL PROVIDE 3/4 INCH CHAMFER ON ALL EXPOSED CORNERS OF COLUMNS, BEAMS, AND WALLS UNLESS OTHERWISE INDICATED ON THE ARCHITECTURAL DRAWINGS.
21. SLABS ON GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL SLAB DETAILS INDICATED ON THE CONSTRUCTION DOCUMENTS.
22. PROVIDE 4 INCHES CRUSHED STONE UNDER ALL SLAB-ON-GRADE LOCATIONS UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL REPORT.
23. FORDS FILL FOR SLABS SHALL BE A UNIFORMLY GRADED MEDIUM COURSE STONE AGGREGATE TO PROVIDE, WHEN COMPACTED, A LEVEL, STABLE AND WELL DRAINING SUB-BASE FOR THE SLAB.
24. PRIOR TO POURING FLOOR SLABS, REFER TO THE CONSTRUCTION DOCUMENTS FOR ADDITIONAL WORK TO BE COMPLETED IN OR BELOW THE FLOOR.
25. AFTER ALL UNDER-SLAB WORK HAS BEEN INSTALLED, CONTRACTOR SHALL FIELD CONFIRM THE DENSITY OF THE SOIL. ANY SOFT, PUMPING, OR OTHERWISE UNSTABLE OR UNSUITABLE SUBGRADE SOIL THIS DETECTED SHALL BE UNDERCUT AND REPLACED WITH SUITABLE FILL PLACED AND COMPACTED AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS WHERE THE COMPACTED SUB-GRADE IS DEPRESSSED (BY MORE THAN 2") SHALL BE FILLED WITH SUITABLE MATERIAL AND RE-COMPACTED.
26. PROVIDE CONTROL JOINTS AT ALL INSIDE CORNERS OF SLAB EDGES, AND AT OTHER LOCATIONS WHERE SLAB CRACKS ARE LIKELY TO DEVELOP.
27. RAMPES, SLOPING SLABS, STEPS, AND SLABS EXPOSED TO WEATHER SHALL RECEIVE A LIGHT BROOCHED FINISH UNO.
28. LOCATE WELDED WIRE FABRIC 1-1/2 INCHES BELOW TOP OF SLAB.

- WOOD FRAMING
1. WOOD CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING BUILDING CODES AND STANDARDS:
A. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC), "TIMBER CONSTRUCTION MANUAL."
B. AMERICAN FOREST & PAPER ASSOCIATION (APFA), "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION."
C. SOUTHERN PINE INSPECTION BUREAU (SPB), "STANDARD GRADING RULES FOR SOUTHERN PINE LUMBER."
D. TRUSS PLATE INSTITUTE (TPI), "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION."
E. ENGINEERED WOOD ASSOCIATION (APA), "PANEL DESIGN SPECIFICATION."
F. AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) STANDARDS.
2. ALL STRUCTURAL LUMBER SHALL BE STAMPED BY AN APPROVED AGENCY IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION, "TIMBER CONSTRUCTION MANUAL."
3. MOISTURE CONTENT OF ALL STRUCTURAL LUMBER SHALL BE LESS THAN 19% AS VERIFIED BY STAMP.
4. ALL STRUCTURAL LUMBER SHALL BE AS FOLLOWS:
A. RAFTERS, JOISTS, HEADERS, BEAMS: HEM-FIR #2, OR BETTER.
B. WALL STUDS, POSTS, & PLATES: S&P STUD GRADE, OR BETTER.
C. INSTALL PRESSURE TREATED OR PRESERVATIVE TREATED LUMBER WHERE LUMBER IS IN CONTACT WITH CONCRETE OR IS EXPOSED TO WEATHER.
5. 2x PRESERVATIVE TREATED SILL PLATES SHALL BE FASTENED TO FOUNDATION w/ 1/2" ASTM F1554 GRADE 36 ANCHOR BOLTS w/ 3" MIN. EMBEDMENT Ø 4'-0" O.C., (2) MIN. PER PLATE, 12" MAX. FROM PLATE ENDS, w/ 2"x3"x10"x24" STEEL PLATE WASHERS UNLESS NOTED OTHERWISE.
6. PROVIDE SOLID BLOCKING UNDERNEATH ALL POINT LOADS, CONTINUOUS TO FOUNDATION OR BEARING. BLOCKING SHALL MATCH SIZE OF POST ABOVE.
7. ALL CONNECTIONS SHALL CONFORM TO THE FASTENING SCHEDULE IN IBC TABLE 2304.4J, UNLESS NOTED OTHERWISE ON THE STRUCTURAL PLANS. ALL BOLTED CONNECTIONS SHALL BE MINIMUM ASTM A307.
8. PREFABRICATED METAL HANGERS AND CONNECTORS SHALL BE INSTALLED AS SPECIFIED ON STRUCTURAL PLANS OR SHOP DRAWINGS. NAILING SHALL CONFORM TO MANUFACTURER'S PUBLISHED TABLES TO PROVIDE MAXIMUM HANGER CAPACITY, UNLESS NOTED OTHERWISE ON STRUCTURAL PLANS. NAILS SHALL BE FULLY DRIVEN IN ALL HOLES IN THE ANCHOR. CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG-TIE UNITED STEEL PRODUCTS (USP), OR APPROVED EQUAL.
10. EXPOSED HARDWARE SHALL BE HOT DIPPED GALVANIZED OR COATED AS REQUIRED FOR CONTACT WITH PRESERVATIVE TREATED WOOD.
11. ALL MEMBERS SHALL HAVE LATERAL SUPPORT SUPPLIED AT ALL BEARING POINTS AS WELL AS CONTINUOUSLY ALONG THE COMPRESSION FACE.
12. ALL HEADERS SHALL BE SUPPORTED BY (1) 2X JACK STUD AND (2) 2X KING STUD MINIMUM. THE NUMBER OF STUDS SPECIFIED AT A SUPPORT INDICATES THE NUMBER OF JACKS REQUIRED, UNO.
13. FOR 2- & 3-PLY BEAMS OF EQUAL 1 3/4" MAX. WIDTH, FASTEN PILES TOGETHER WITH (3) ROWS OF 3"x10"x2" NAILS @ 8" O/C OR (2) ROWS 1/2"x3"x2" SIMPSON SDS SCREWS (OR 3/8" TRUSSLOK SCREWS) @ 16" O/C. USE A MINIMUM OF (4) ROWS FOR BEAM DEPTHS OF 14" OR GREATER. APPLY FASTENING AT BOTH FACES FOR 3-PLY. CONDITION LOCATE TOP & BOTTOM NAILS/SCREWS 2" FROM EDGE. SOLID 3/8" OR 5/4" BEAMS ARE ACCEPTABLE. USE (2) ROWS OF NAILS FOR 2x6 & 2x8 MEMBERS.
14. FOR 4-PLY BEAMS OF EQUAL 1 3/4" MAX. WIDTH, FASTEN PILES TOGETHER WITH (3) ROWS OF 1/2"x6" SIMPSON SDS SCREWS (OR 5/8" TRUSSLOK SCREWS) @ 16" O/C. USE A MINIMUM OF (4) ROWS FOR BEAM DEPTHS OF 14" OR GREATER. APPLY FASTENING AT BOTH FACES (ONE SIDE ONLY FOR TRUSSLOK SCREWS). LOCATE TOP AND BOTTOM SCREWS 2" FROM EDGE. A SOLID 7" BEAM IS ACCEPTABLE.
15. ALL ENGINEERED LUMBER SHALL CONFORM TO THE FOLLOWING MINIMUM DESIGN PROPERTIES:
E = 2,000,000 PSI Fx = 2400 PSI Fy = 285 PSI Fx// = 2300 PSI Fy// = 750 PSI
16. ALL ROOF, WALL, AND FLOOR SHEATHING SHALL COMPLY WITH THAT SPECIFIED ON PLANS.
17. ALL NAIL SIZES, LENGTH & DIAMETER, SHALL BE PER DIMENSIONS SPECIFIED ON THE STRUCTURAL PLANS. IF A LENGTH & DIAMETER IS NOT SPECIFIED ON PLAN, NAILS SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS, UNO:
8d NAILS: 2 1/2" LONG, 0.120" SHANK, FULL HEAD
10d NAILS: 3" LONG, 0.120" SHANK, FULL HEAD
12d NAILS: 3 1/4" LONG, 0.131" SHANK, FULL HEAD
16d NAILS: 3 1/2" LONG, 0.131" SHANK, FULL HEAD
18. GLUED LAMINATED WOOD MEMBERS SHALL BE SOUTHERN PINE OR DOUGLAS FIR WITH GRADE COMBINATIONS THAT WILL FURNISH A MINIMUM ALLOWABLE EXTREME FIBER STRESS IN BENDING OF 2400 PSI. MEMBERS SHALL CONFORM TO ANSI/APA 190, LATEST EDITION.
19. EXPOSED GULLIAM MEMBERS SHALL BE AITC ARCHITECTURAL APPEARANCE GRADE, OTHERS MAY BE AITC INDUSTRIAL APPEARANCE GRADE.

- BRICK/STONE VENEER
1. ALL WORK FOR MASORY INCLUDING COMPOSITION, QUALITY AND PLACEMENT OF MATERIALS, QUALITY ASSURANCE FOR MATERIALS AND CONSTRUCTION OF MASORY SHALL COMPLY WITH THE 402, BUILDING CODE REQUIREMENTS FOR MASORY STRUCTURES", AND THE 602 "SPECIFICATION FOR MASORY STRUCTURES".
2. MATERIALS STANDARDS (UNLESS NOTED OTHERWISE ON DRAWINGS OR IN PROJECT SPECIFICATIONS):
A. BUILDING BRICKS PER ASTM C62, GRADE SW.
B. HOLLOW BRICKS PER ASTM C622, GRADE SW, TYPE PER ARCH.
C. FACING BRICKS PER ASTM C216, GRADE SW, TYPE PER ARCH.
D. THIN VENEER BRICK UNITS PER ASTM C1088, GRADE EXTERIOR, TYPE PER ARCH.
E. MORTAR TYPE SHALL BE PORTLAND CEMENT/LIME, TYPE N CONFORMING TO ASTM C270 UNLESS OTHERWISE NOTED ON STRUCTURAL PLANS.
3. FOR THIN ADHERED BRICK VENEER, MORTAR TYPE SHALL BE PORTLAND CEMENT/LIME, TYPE S CONFORMING TO ASTM C270 APPLIED TO A THICKNESS OF 3/8" TO 1/2" MAX. MORTAR SHALL BE ADHERED PER ASTM C482 OR IN COMPLIANCE W/ ARTICLE 3.3 C OF TMS 602/ACI 580.1/ASCE 6.
5. THIN ADHERED BRICK VENEER ASSUMED TO HAVE 23% MAX THICKNESS & 15 PSF MAX WT.
6. TRUE BRICK VENEER ASSUMED TO HAVE 3 3/4" (4" NOMINAL) MAX THICKNESS & 40 PSF MAX WT.
7. ALL MORTAR MIXES AND ADMIXTURES SHALL BE SUBMITTED FOR APPROVAL.
8. FOR ANCHORED BRICK VENEER, PLACE HORMANN 4 BARNARD DN-1046 OR X-SEAL (IF INSTALLED OVER INSULATION)
9. CORROSION-RESISTANT VENEER ANCHORS AT 16" O.C. MAX. IN EA. DIRECTION AT PARAPET CONDITIONS, TIGHTEN THE SPACING VERTICALLY TO HALF OF TYP. SPEC.
10. VENEER ANCHORS SHALL BE ATTACHED DIRECTLY TO WOOD OR COLD-FORMED STEEL BACKING THROUGH SHEATHING (NO SHEATHING ALONE) W/ CORROSION-RESISTANT 8D RING SHANK NAILS OR CORROSION-RESISTANT #10 SCREWS RESPECTIVELY, OR PER MANUFACTURER'S SPECIFICATIONS. WHEN ANCHORING BRICK VENEER TO CONCRETE/MASONRY BACKING FASTEN ANCHORS W/ 3/8" DIA. TAPSCREWS OR EQUIV.
11. COLOR-CURED STEEL BACKING SHALL BE CORROSION-RESISTANT AND HAVE A MINIMUM BASE METAL THICKNESS OF 16 GA.
12. VENEER ANCHORS SHALL BE LOCATED 12" MIN. FROM TOP/BOTTOM OF WALL ASSEMBLIES.
13. IF HOT-ROLLED STEEL BACKING IS PRESENT, UTILIZE HORMANN 4 BARNARD 354-FH WELD-ON VENEER ANCHORS AT MAX. SPACING OF 16" O.C. IN EA. DIRECTION (AS REQUIRED).
14. ANCHORED VENEER NOT LAID IN RUNNING BOND SHALL HAVE JOINT REINFORCEMENT CONSISTING OF (1) WIRE OF SIZE #17 AT 16" O.C. MAX. VERTICALLY.
15. THE MINIMUM DISTANCE BETWEEN THE INSIDE FACE OF BRICK VENEER AND THE OUTSIDE FACE OF WALL SHEATHING/INSULATION (i.e., AIR SPACE) SHALL BE 1 INCH SEE ARCH FOR AIR SPACE.
16. THE MAXIMUM DISTANCE BETWEEN THE INSIDE FACE OF BRICK VENEER AND THE OUTSIDE FACE OF THE STRUCTURAL BACKING MATERIAL (i.e., "CAVITY SPACE") SHALL BE 4 1/2", UNO.
17. ALL BRICK UNITS SHALL BE LAID IN A FULL BED OF MORTAR.
18. WATERPROOFING, FLASHING, AND KEEPS PER ARCH.
19. COMPLETELY FILL THE AIR SPACE BELOW WALL BASE FLASHING WITH GROUT OR MORTAR.
20. BOND BREAKER SHALL BE PLACED BETWEEN BRICK VENEER AND FOUNDATION.
21. EMPLOY HOT WEATHER/COLD WEATHER CONSTRUCTION MEASURES WHEN TEMPERATURE LIMITS ARE REACHED PER BRICK INDUSTRY ASSOCIATION (BIA) TECHNICAL NOTE 1.
22. ARCH TO SPECIFY MOVEMENT JOINTS IN THIN ADHERED BRICK VENEER PER GUIDANCE IN BIA TECHNICAL NOTE 280. SPECIAL CONSIDERATION SHOULD BE GIVEN TO PARAPET CONDITIONS.
23. ARCH TO SPECIFY MOVEMENT JOINTS IN ANCHORED BRICK VENEER PER GUIDANCE IN BIA TECHNICAL NOTE 18A.
24. HORIZONTAL DEFLECTION LIMITS OF BACKING ELEMENTS FOR OUT-OF-PLANE LOADING TO BE KEPT TO 1/240 AT WALL STUDS & 1/360 AT PARAPET STUDS.

PREFABRICATED WOOD TRUSSES

1. DESIGN, FABRICATION, AND INSTALLATION OF TRUSSES AND METAL CONNECTORS SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND SPECIFICATIONS:
A. ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION".
B. INTERNATIONAL BUILDING CODE (IBC).
C. BOSI, "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES."
2. TRUSS MEMBERS SHALL BE ENGINEERED TO SUPPORT ALL CODE REQUIRED UNIFORM LIVE LOADS AND DEAD LOADS, AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS. ALL POINT LOADS, PARTIAL UNIFORM LOADS, OR COMBINATIONS THEREOF SHALL BE CALCULATED BY THE TRUSS MANUFACTURER AND ACCOUNTED FOR IN THE DESIGN OF THE TRUSSES.
3. TRUSSES SHALL BE DESIGNED BY MANUFACTURER TO MEET AND/OR EXCEED THE FOLLOWING DEFLECTION CRITERIA:
A. ROOF TRUSSES: L/360 LIVE LOAD & L/240 TOTAL LOAD (RECOMMEND 1/25" MAX TL DEFLECTION)
B. FLOOR TRUSSES: L/480 LIVE LOAD & L/300 TOTAL LOAD (RECOMMEND 1/10" MAX TL DEFLECTION)
4. TRUSSES SHALL BE DESIGNED SO THAT DIFFERENTIAL DEFLECTION BETWEEN ADJACENT PARALLEL TRUSSES OR GIRDER TRUSSES DOES NOT EXCEED THE FOLLOWING:
A. ROOF TRUSSES: 1/4" DEAD LOAD & 1/8" TOTAL LOAD
B. FLOOR TRUSSES (SPACING = 24" O.C.): 3/8" DEAD LOAD & 3/8" TOTAL LOAD
C. FLOOR TRUSSES (SPACING = 24" O.C.): 1/8" DEAD LOAD & 1/4" TOTAL LOAD
5. SHOP DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PROPOSED CONSTRUCTION, SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO FABRICATION OF THE TRUSSES. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:
A. DRAFTED PLAN LAYOUTS IDENTIFYING ALL TRUSSES.
B. INDIVIDUAL MEMBER SHOP DRAWINGS INCLUDING: DIAGRAM OF MEMBER, CHORD STRESSES, SUPPORT REACTIONS AND UPLIFT FORCES, LUMBER SPECIFICATIONS, UNIFORM AND ANY OTHER LOADING CONDITIONS, WEB MEMBER BRACING, STRONGBACK LOCATIONS (FLOOR TRUSSES)
C. SPECIFICATIONS FOR ALL METAL HANGERS AND CONNECTORS.
6. ALL PREFABRICATED WOOD ROOF TRUSSES SHALL BE SECURELY FASTENED TO EACH SUPPORTING WALL OR BEAM WITH (1) SIMPSON H25T HURRICANE CLIP (OR APPROVED EQUAL), UNLESS NOTED OTHERWISE ON STRUCTURAL PLANS. PROVIDE (2) SIMPSON H25T CLIPS AT ALL SUPPORTS OF 2-PLY ROOF GIRDER TRUSSES, AND (3) CLIPS AT 3-PLY GIRDER TRUSSES, UNLESS NOTED OTHERWISE ON STRUCTURAL PLANS.

SHOP DRAWINGS

1. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHIT. SPECIFICATIONS.
2. THE CONTRACTOR SHALL REVIEW ALL DRAWINGS PRIOR TO SUBMITTAL. ITEMS NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE FLAGGED UPON REVIEW.
3. VERIFY ALL DIMENSIONS WITH THE ARCHITECT.
4. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER OR FABRICATOR.
5. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
6. THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS OMITTED OR SHOWN INCORRECTLY AND ARE NOT FLAGGED BY THE STRUCTURAL ENGINEER OR ARCHITECT ARE NOT TO BE CONSIDERED CHANGES TO CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE ITEMS ARE CONSTRUCTED TO CONTRACT DOCUMENTS.
7. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNER OR SUBMITTING AUTHORITY.
8. REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR.
9. SHOP DRAWINGS FOR ALL STRUCTURAL MATERIALS TO BE SUBMITTED TO ARCHITECT FOR REVIEW PRIOR TO THE START OF FABRICATION OR COMMENCEMENT OF WORK.
10. REVIEW PERIOD SHALL BE A MINIMUM OF TWO (2) WEEKS.
11. MULHERN & KULP WILL NOT BE HELD RESPONSIBLE FOR ANY STRUCTURAL ISSUES RELATED TO ANY BUILDING COMPONENT IF CONSENT SHOP DRAWINGS ARE NOT SUBMITTED TO MK FOR REVIEW PRIOR TO FABRICATION, DELIVERY, OR INSTALLATION.

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MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

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PLAN REVIEW COMMENTS

McBRIDE & SON
HOMES

GENERAL STRUCTURAL NOTES

HARVEST PAVILION

O'FALLON, MISSOURI

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